

CLAIMS

1. A method of updating user interface data in a server-client system (10) arrangement of electronic products, the method comprising:
5 a server (12) sends a message to the system concerning a node (28, 54) in a hierarchical array of a user interface, the message providing an indication of what is the most recent data for the user interface node, and the server monitors the system for a response to that message.
- 10 2. A method according to Claim 1 wherein, if the server (12) receives a response, the server sends the most recent data for that user interface node (28, 54).
3. A method according to Claims 1 or 2 wherein the message
15 includes information on the current data for the node (28, 54) and, if the client (14, 16) does not have that current data, a response is sent.
4. A method according to any preceding claim wherein the message-sending and response-monitoring operations are repeated for a
20 number of nodes (28, 54) in the array.
5. A method according to any preceding claim wherein the array is arranged in a plurality of groups of user interface actions and, when a response has been received, the server (12) sends a message concerning the
25 next node (28, 54) in the same user interface group as the previous node.
6. A method according to any preceding claim wherein the array is arranged in a plurality of groups of user interface actions and, when no response has been received, the server (12) sends a message concerning a
30 node (28, 54) in a subsequent user interface group of the array.

7. A method according to any preceding claim comprising the server (12) sending a message having data including a time stamp to indicate the last time that the data was up-dated.

5 8. A method according to any preceding claim comprising storing data concerning the user interface nodes (28, 54) in a cache (24) at a client (14, 16).

9. A method according to any preceding claim comprising the client
10 (14, 16) indicating where in the array updating is required.

10. A method according to any preceding claim wherein the client
(14, 16) send information of the oldest data beneath the node for cache
updating.

15 11. A computer program product directly loadable into the internal memory of a digital computer, comprising software code portions for performing the method of any one or more of Claims 1 to 8 when said product is run on a computer.

20 12. A computer program directly loadable into the internal memory of a digital computer, comprising software code portions for performing the method of any one or more of Claims 1 to 10 when said program is run on a computer.

25 13. A carrier, which may comprise electronic signals, for a computer program of Claim 12.

30 14. Electronic distribution of a computer program product of Claim 11, or a computer program of Claim 12, or a carrier of Claim 13.

15. A system (10) for updating user interface data in a server-client system (10) arrangement of electronic products, the system comprising:

5 a server (12) to send a message to the system concerning a node (28, 54) in a hierarchical array of a user interface, the message providing an indication of what is the most recent data for the user interface node, the server to monitor the system for a response to that message.

16. A system (10) according to Claim 16 wherein the server (12) has means to send the most recent data for that user interface node (28, 54) if the
10 server receives a response.

17. A system (10) according to Claims 15 or 16 wherein the message includes information on the current data for the node (28, 54) and comprising means to send a response if the client does not have that current
15 data.

18. A system (10) according to any of Claims 15 to 17 comprising means to repeat message-sending and response-monitoring operations for a number of nodes (28, 54) in the array.
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19. A system (10) according to any of Claims 15 to 18 wherein the array is arranged in a plurality of groups of user interface actions and the server (12) has means to send a message concerning a node (28, 54) in the same user interface group as the previous node, when a response has been
25 received.

20. A system (10) according to any of Claims 15 to 19 wherein the array is arranged in a plurality of groups of user interface actions and the server (12) sends a message concerning a node (28, 54) in a subsequent user
30 interface group of the array, when no response has been filed.

21. A server (12) for a system (10) for updating user interface data in a server-client arrangement of electronic products, the server having means to send a message to the system concerning a node (28, 54) in a hierarchical array of a user interface, the message providing an indication of what is the most recent data for the user interface node, the server having means to monitor the system for a response to that message.

22. A server (12) according to Claim 21 wherein the server has means to send the most recent data for that user interface node (28, 54) if the server receives a response.

23. A server (12) according to Claims 21 or 22 wherein the message includes information on the current data for the node (28, 54) and comprising means to send a response if the client does not have that current data.

24. A server (12) according to any of Claims 21 to 23 comprising means to repeat message-sending and response-monitoring operations for a number of nodes in the array.

25. A server (12) according to any of Claims 21 to 24 wherein the array is arranged in a plurality of groups of user interface actions and the server has means to send a message concerning a node (28, 54) in the same user interface group as the previous node, when a response has been received.

26. A server (12) according to any of Claims 21 to 25 wherein the array is arranged in a plurality of groups of user interface actions and the server send a message concerning a node (28, 54) in a subsequent user interface group of the array, when no response had been filed.

27. A client (14, 16) for updating user interface data in a server-client system (10) arrangement of electronic products, the client having means to

receive a message to the system concerning a node in a hierarchical array of a user interface, the message providing an indication of what is the most recent data for the user interface node.

5 28. A client (14, 16) according to Claim 27 comprising means to send a response to a message if the client does not have the current data for that node (28, 54).

10 29. A client (14, 16) according to Claims 27 or 28 wherein the array is arranged in a plurality of groups for user interface actions and a server (12) has means to send a message concerning a node in the same user interface group as the previous node, when a response has been received.

15 30. A client (15, 16) according to any of Claims 27 to 29 wherein the array is arranged in a plurality of groups of user interface actions and a server sends a message concerning a node in a subsequent user interface group of the array, when no response has been filed.